

What is claimed is.

1. In agricultural equipment, construction machinery, machine tool, or appliances, including an over running clutch having an input connected in rotatably driven relation to a source of rotatable power, and an output connected in rotatably driven relation to rotatable elements of the picking unit, the input and output being jointly rotatable along a path of rotational movement when the input and output are engaged such that the power source will rotate the rotatable elements at a desired rotational speed, and the input and output being rotatable one relative to the other along the path of rotational movement in an over running condition, and the improvement comprising;

a sensor operable in a first state when a predetermined magnetic field is absent, and operable in a second state when the predetermined magnetic field is present;

a magnetic actuator mounted near a first of the input or the output and operable for emitting the predetermined magnetic field; and

a shield disposed on a second of the
input or the output in a position for shielding the sensor
from the actuator when the input and the output are jointly
rotating in the normal condition, and such that when the
5 input and the output are in the overrunning condition the
shield will be at least intermittently positioned to allow
the sensor to be sufficiently exposed to the magnetic field
to change the state of the sensor.

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2. In a vertical cotton harvester drum, of
the type having a rotor shaft keyed to and extending up
through the internal slippable hub of a slip clutch, and an
input drive mounted to the external drive portion of a slip
15 clutch; the improvement comprising: a non-contact system
for instantaneously detecting when the clutch slips or
overruns, which system comprises a fixed magnetic actuator
and a reed switch sensor and shield assembly located at the
clutch and changes states at the instant the clutch slips.

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3. The improved cotton harvester drum
clutch slippage detection and system of claim 2 wherein
(a.) the clutch comprises an external housing and an

internal hub portion, (b.) at least one magnetic reed switch sensor fixed upon an appendage extending from the clutch's external housing, (c.) an actuator opposite at least one sensor which actuator transmit a magnetic field
5 there-between, the switch and a shield extending radically from the internal portion of said clutch so as to block the field between the sensor and actuator until the clutch slips; said shield having a series of spaced apart openings, and said shield being disposed such that as the
10 clutch faults, the shield revolves to a position exposing the actuator and sensor, face-to-face through one or more of a series of openings, thereby changing the state of the switch instantly, and allowing clutch slippage to be thereby detected without the need for sensing speed
15 differential between other shafts nor comparing or averaging adjacent rotor shaft assemblies.